

Limiting the claims to methods for deinking recycled newsprint (as opposed to mixed office waste) is significant because newsprint and mixed office waste differ in the types of ink employed, the chemical properties of the ink, the size and physical properties of the ink particles, the means by which the ink is applied to the paper, and the presence of other chemicals in the recycle bath that are used to coat and manufacture mixed office waste. Therefore, a skilled worker would not be motivated to use a deinking composition designed for mixed office waste in a newsprint deinking operation.

Limiting the claims to wash processes for deinking paper (as opposed to flotation-based systems) is also significant. As explained in the background of the patent application:

There are two major types of deinking methods or practices, namely flotation/washing combination and wash deinking. Flotation/washing deinking refers to a deinking process in which the ink released by the deinking composition is separated from the cellulosic fibers primarily through the flotation devices or flotation cells of the recycling process prior to passing the pulp through washing stages (i.e. through washers). Wash deinking, on the other hand, refers to a deinking process wherein the ink released by the deinking composition is separated from the cellulosic fibers primarily in the washing stages.

Because flotation based systems are characterized generally as "hydrophobic" systems, and because wash deinking systems are characterized generally as "hydrophilic" systems, a skilled worker would not be motivated to use a deinking composition from a flotation system in a wash deinking system.

These facts alone prove that the invention is not obvious because, if the Examiner is correct that it would have been obvious to make the claimed deinking composition for use in flotation processes for deinking mixed office waste, as he has alleged based upon the disclosures of the Robbins and Irinatzu patents, then it could not have been obvious to employ these same compositions in a wash deinking system for recycled newsprint.

Rejection under 35 U.S.C. 103(a) over Jobbins et al., US 5,807,464

The Final Rejection maintains the pending rejections over Jobbins et al., US 5,807,464. Jobbins discloses an enzymatic deinking process for mixed office waste. The process is a flotation-based system.

Jobbins does not support a prima facie case of obviousness against the claimed invention because Jobbins discloses a flotation-based deinking system and as mentioned above a skilled worker would not have been motivated to use a flotation-based deinking composition in a wash deinking system.

Jobbins also does not support a prima facie case of obviousness because Jobbins discloses a process for deinking mixed office waste, and a skilled worker would not have been motivated to use a deinking composition designed for mixed office waste in a process for deinking recycled newsprint.

Jobbins also does not support a prima facie case of obviousness because, while the ranges of individual components that Jobbins' generally discloses may partially overlap with the ranges of components in the presently claimed surfactant, a skilled worker would not have been motivated to combine the individual components from Jobbins surfactant to obtain Applicants' surfactant because of the distinct requirements of a mixed office waste flotation system versus a recycled newsprint wash deinking system. Because Jobbins' process is a flotation-based system, Jobbins requires a deinking agent in which the hydrophobic/hydrophilic balance of carbon length, propylene oxide content, and ethylene oxide content, is tilted toward a hydrophobic product. Thus, Jobbins' preferred deinking agent is a compound that has an ethylene oxide content of only 3-12, which is below the 14-40 degrees of ethoxylation presently claimed. Col. 6, line 67. Because a skilled worker would not have selected the claimed combination of components from Jobbins general disclosure, Jobbins does not support a prima facie case of obviousness against the pending claims.

Rejection under 35 U.S.C. 103(a) over Irinatsu et al., US 6,103,056

The Final Rejection maintains the rejection of the pending claims for allegedly being obvious over Irinatsu et al., US 6,103,056. Irinatsu discloses a flotation deinking system for removing ink from mixed paper wastes. The Office Action notes that Example 3 discloses a surfactant in which R is C₁₈, and (AO)_n comprises 15 moles of ethylene oxide and 15 moles of propylene oxide. The Office Action further indicates that example 5 discloses a surfactant in which R is C₁₈, and (AO)_n comprises 10 moles of ethylene oxide and 10 moles of propylene oxide.

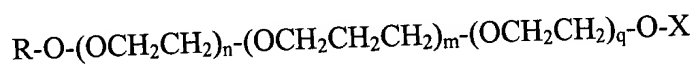
As with Jobbins, Irinatsu does not support a prima facie case of obviousness against the claimed invention because Irinatsu discloses a flotation-based system for deinking mixed paper waste and, as mentioned above, a skilled worker would not have been motivated to use a deinking composition from Irinatsu's process: (1) in a process for deinking recycled newsprint, and (2) in a wash deinking process.

Irinatsu also does not support a prima facie case of obviousness because, while the general ranges of individual components of Irinatsu's surfactant may overlap somewhat with the ranges of components in the presently claimed surfactant, a skilled worker would not have been motivated to select a combination of individual components from Irinatsu's surfactant that overlaps with the claimed combination of components because of the distinct requirements of flotation based systems versus wash deinking systems. This is borne out by the fact that of the two examples cited in the Final Rejection, neither discloses a surfactant that is covered by the pending claims.

Rejection under 35 U.S.C. 103(a) over Rodriguez et al., US 5,665,204

The Final Rejection also maintains the rejection for alleged obviousness over Rodriguez et al., US 5,665,204. Rodriguez discloses a washing process for deinking wastepaper derived from various sources:

Rodriguez states that surfactants useful in the process have the following general structure:



Notably, this genus does not overlap with the claimed compositions because the compounds claimed herein do not contain an R-O-O- function on the left hand side. The genus does not even overlap with the only compound exemplified in the patent (the POE(8)POP(12)POE(6)Nonyl Phenol described in column 4 of the patent), because this compound does not terminate in an R-O-O- function, and because X does not include aralkyl, but instead is limited to alkyl, alkenyl, or aryl. These substantial errors significantly lessen the weight of this reference as relevant prior art, and draw into question the value of any of the reference's supposed teachings.

The breadth of Rodriguez' disclosure, especially in view of its narrow enabling disclosure, further devalues the reference, and further prevents the skilled worker from arriving at the processes claimed herein based upon the reference teachings. For example, Rodriguez states that his compositions can be used to deink "any type of printed wastepaper (even paper containing many fillers)". The patent goes on to state that the compositions can be used with "any type of print: daily newspapers (letter-press or offset), illustrated magazines (coated or uncoated), electronic computer tabulations, paper of archives with or without mechanical pulp, trimmings from typographical or from paper working industries, and printed polyethylenized cardboards, etc." See paragraph bridging columns 4 and 5. The patent makes no effort to address the fact that these paper types each have unique processing requirements based upon their unique chemical characteristics. A skilled worker would find these assertions to be incredulous and without any guidance or teaching.

The patent continues down its incredulous path as it discusses the various components that can be used to construct the chemical structure. For example, the patent describes R and X as hydrogen alkyl, alkenyl, or aryl group containing from 3 to 35 carbon atoms, and gives no indication of the degree to which the constituent can be hydroxylated. See column 2, lines 15-17. Thus, if a skilled worker were motivated to modify the structure described by Rodriguez to obtain a class of compounds similar to Applicants (the Final Rejection cites no such motivation), the skilled worker would still need to select the claimed monohydric C16-C25 constituent from the extremely broad genus defined by the patent, which includes hydrogen, C3-C35 alkyl, C3-C35 alkenyl, and C3-C35 aryl. It simply cannot be assumed that the skilled worker would be motivated to take such a leap when the only other guidance given in the patent is the use of nonyl phenol (which is neither alkyl nor C16-C25) as the R group.

The overbreadth of the Rodriguez patent is further compounded by the definition of X. While the X position in applicant's compounds is occupied by hydrogen, Rodriguez indicates that the compound can contain hydrogen, C3-C35 alkyl, C3-C35 alkenyl, or C3-C35 aryl at the X-position.

Rodriguez' overbreadth continues as it describes the relative degrees of ethoxylation and propoxylation in the compound. Once again, it is hard to believe that the skilled worker would be motivated to select the 14-40 units of ethoxylation in applicants' compounds from the 2-100

units of ethoxylation disclosed by Rodriguez. Column 2, lines 13-17. Similarly, it is hard to believe that the skilled worker would select the 0-10 units of propoxylation in applicants' compounds from the 1-50 units of propoxylation disclosed by Rodriguez, especially when the only exemplified compound in the patent contained 12 moles of propylene oxide.

In summary, Rodriguez discloses a vast array of compounds for a vast array of deinking processes, while providing only one example of a working process. In the course of this vast disclosure, Rodriguez describes a genus of compounds that does not even include its working example because (1) the genus terminates in an R-O-O- function, and (2) the R cannot even be aralkyl which it must be to cover the exemplified nonyl phenol. If a skilled worker were to derive any guidance from this pitifully drafted disclosure, it would only be from the examples, but this compound would not direct the skilled worker toward the claimed compounds because it contains an aralkyl terminal function, and a propylene oxide content of 12 units.

Therefore, Rodriguez does not support a prima facie case of obviousness against the present invention either.

CONCLUSION

The Examiner is invited to contact the undersigned at 404-572-3513 should he have any questions concerning this application or response. To the extent a fee is due for this submission, the Commissioner is hereby authorized to charge such fee to deposit account number 14-0629.

Respectfully submitted,



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3097346 v1

REPLACEMENT CLAIM SET

- 1) CANCELLED
- 2) CANCELLED
- 3) CANCELLED
- 4) CANCELLED
- 5) CANCELLED
- 6) CANCELLED
- 7) CANCELLED
- 8) CANCELLED
- 9) CANCELLED
- 10) CANCELLED
- 11) CANCELLED
- 12) CANCELLED
- 13) CANCELLED
- 14) CANCELLED
- 15) CANCELLED
- 16) CANCELLED

B'

17) A process for deinking recycled newsprint comprising the steps of contacting recycled newsprint pulp with a deinking composition comprising one or more surfactants, and separating ink released by the recycled newsprint primarily in one or more washing stages, the surfactants including at least 50% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about 10 moles of propylene oxide per mole of alcohol.

18) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein the surfactants include at least 70% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about 6 moles of propylene oxide per mole of alcohol.

- 19) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein the surfactants include at least about 80% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about 6 moles of propylene oxide per mole of alcohol.
- 20) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein the surfactants consist essentially of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about 6 moles of propylene oxide per mole of alcohol.
- 21) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein said alkoxylates are C16 to C18 alkoxylates.
- 22) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein said alkoxylates are saturated.
- 23) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein said alkoxylates have the formula: $R-O-(CH_2-CH_2-O)_n-(CH_2-CH(CH_3)-O)_m-H$, wherein R is a straight chain or branched chain C16-C25 alkyl group, n is from 14 to 40 and m is from 0 to about 6.
- 24) The process according to Claim 23, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein R is a straight chained, C16-C25 alkyl group.
- 25) The process according to Claim 24, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein R is a C16 to C18 alkyl group.
- 26) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein said alkoxylates are based on primary or secondary alcohols.
- 27) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein the average number of ethylene oxide groups per alkoxylate molecule is from about 16 to about 30.

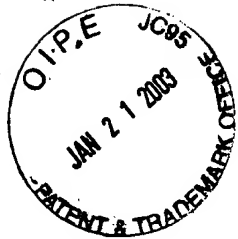
- 28) CANCELLED.
- 29) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition further comprising from 0 to about 25% by weight of one or more fatty acids based on the total weight of surfactants.
- 30) The process according to Claim 29, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein said one or more fatty acids are selected from the group consisting of lauric acid, oleic acid, stearic acid, tall oil fatty acid, tallow fatty acid, coconut fatty acid, and mixtures thereof.
- 31) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with a composition wherein the alkoxyates are present in an amount from about 0.3% to about 0.7% by weight based on the oven-dry weight of the wastepaper.
- 32) The process according to Claim 17, wherein the contacting step comprises contacting the recycled newsprint pulp with the deinking composition at a pH of from greater than 7 to 10.
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- B² 33) In a process for making recycled paper from recycled newsprint pulp that uses less sizing agents to produce paper with the same level of water repellency, the improvement comprising: deinking the wastepaper pulp in a wash deinking process with a deinking composition that includes as a deinking surfactant one or more non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxyates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about 10 moles of propylene oxide per mole of alcohol, wherein the process produces paper using less sizing agents.
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- 34) CANCELLED
- 35) The process of claim 17 wherein the surfactants of non-ionic C16 to C25 aliphatic, monohydric alcohol alkoxyates have about 0 moles of propylene oxide per mole of alcohol.
- 36) CANCELLED
- 37) CANCELLED
- 38) CANCELLED

B3
39) A process for deinking wastepaper comprising the steps of contacting wastepaper pulp with a deinking composition comprising one or more surfactants, and separating ink released by the recycled newsprint primarily in one or more washing stages, the surfactants including at least 50% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and about 0 moles of propylene oxide per mole of alcohol.

40) The process of claim 39 wherein the surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates have 0 moles of propylene oxide per mole of alcohol.

41) CANCELLED

42) CANCELLED



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JAN 23 2003

TC 1700

Serial No. 09/699,303
Amendment After Final and Response to Office Action
January 13, 2003

VERSION OF CLAIMS TO SHOW CHANGES MADE

Claims 1-4, 6, 7, 10, 13-16, 34, 36, 37, 38, 41, and 42 have been cancelled, and claims 17, 33, and 39 have been amended, as indicated below.

- 17) [TWICE AMENDED] A process for deinking [wastepaper] recycled newsprint comprising the steps of contacting recycled newsprint pulp with a deinking composition comprising one or more surfactants, and separating ink released by the recycled newsprint primarily in one or more washing stages, the surfactants including at least 50% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to about [6] 10 moles of propylene oxide per mole of alcohol.
- 33) [TWICE AMENDED] In a process for making recycled paper from recycled newsprint pulp that uses less sizing agents to produce paper with the same level of water repellency, the improvement comprising: deinking the wastepaper pulp in a wash deinking process with a deinking composition that includes as a deinking surfactant one or more non-ionic, C16 to [C18] C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ~~ethylene oxide per mole of alcohol and 0 to about 10~~ [6] moles of propylene oxide per mole of alcohol.
- 39) [ONCE AMENDED] A process for deinking wastepaper comprising the steps of contacting wastepaper pulp with a deinking composition comprising one or more surfactants, and separating ink released by the recycled newsprint primarily in one or more washing stages, the surfactants including at least 50% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and about 0 moles of propylene oxide per mole of alcohol.